

REMARKS

Claims 10-23 remain pending after amendment, with claims 15-20 being withdrawn from consideration.

Claim Amendments

By this amendment, claim 9 is cancelled, and the limitations thereof added to claims 12 and 13. The independent claims are now directed to the use of a single switching valve. Various editorial amendments are also made in the claims. New claims 21-23 are added which correspond to dependent claims 10, 11 and 14, but depend from claim 13 instead of claim 12. No new matter is added by this amendment.

Rejection under 35 USC 102(b)

Claims 9-11 stand rejected under 35 USC 102(b) as being unpatentable over Ruijten U.S. Patent No. 4,554,071.

In response, claim 9 is cancelled, and the limitations thereof added to claims 12 and 13.

As a result, the rejection of claims 9-11 as being anticipated by Ruijten '071 is without basis and should be withdrawn.

Rejection under 35 USC 103(a)

Claims 12-14 stand rejected under 35 USC 103(a) as being unpatentable over Ruijten '071 in view of Singleton U.S. Patent

No. 5,462,660. This rejection is respectfully traversed.

In response, the limitations of claim 9 are added to both claims 12 and 13. The dependencies of the remaining claims are amended accordingly. New claims 21-23 are added. Claims 10-14 and 21-23 are accordingly believed to define over the cited prior art for the following reasons.

The claimed invention is characterized by (1) feeding a mobile phase 1 through a switching valve into a mixing chamber (MC) with a pump; (2) switching the switching valve and then feeding a mobile phase 2 for sample separation into a mixing chamber (MC) with a transferring pump 2 to mix the mobile phase and form a gradient; and (3) feeding a mixture including the formed gradient to a component-concentrating column (M).

The embodiments defined by claims 12 and 13 are depicted in applicants' Figures 1 and 2, respectively.

A membrane is used as a carrier material in the component-concentrating column (M). Elevated pressures can accordingly be avoided in the column.

As an advantage, a sample can be injected manually without use of a sample loop.

The presence of a dead volume in the component-concentrating column (M) can be avoided, and therefore the accuracy of the analyzing can result. Such advantages result from use of a membrane in the column.

The claimed invention is characterized by including only one

switching valve. This results in a simpler structure than the use of multiple valves.

Avoiding the presence of an elevated pressure in the component-concentrating column is possible due to the use of a membrane. No sample loop is used when a sample is manually injected into the component-concentrating column.

The cited prior art fails to disclose or suggest the claimed invention. Ruijten discloses a pre-column having a structure including a carrier material or an adsorption agent, such as silica gel, which is included between two filter sheets. The reference fails to disclose or suggest the formation of a gradient using a mixing chamber (MC) as claimed, or having the flow sequencing defined by claims 12 and 13.

Singleton discloses the use of two switching valves, whereas applicants' claims are limited to the use of a single switching valve. Singleton describes the use of two solvents being fed by a pump 24 to form a gradient for separation of components. Singleton also shows a concentrating column 16 being 5cm in length. It is accordingly necessary to apply significant pressure to inject a sample into the concentrating column 16, a result which applicants are able to avoid by practice of the claimed invention.

The asserted combination of references fails to suggest the claimed invention. No motivation or teachings reside in Singleton which would permit modification of the invention therein to

employ a single switching valve in the manner defined by independent claims 12 and 13, whereby the flow sequencing recited in the claims may be employed.

In view of the above, the rejection is without basis and should be withdrawn.

The application is now in condition for allowance, and an early indication of same is earnestly solicited.

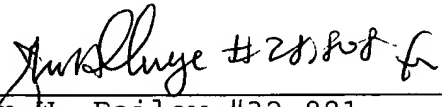
A check in the amount of \$1020.00 is attached for a three month extension of time.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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